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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/599,267

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Manuela Stadelmann

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WHITHAM, CURTIS & CHRISTOFFERSON & COOK, P.C.

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SUITE 340

RESTON, VA 20190

EXAMINER

BELL, BRUCE F

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

06/11/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/599,267	Applicant(s) STADELMANN ET AL.	
	Examiner Bruce F. Bell	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 10-16 is/are rejected.
- 7) ☒ Claim(s) 8 and 9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9/25/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (d) BRIEF SUMMARY OF THE INVENTION.
- (e) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (f) DETAILED DESCRIPTION OF THE INVENTION.
- (g) CLAIM OR CLAIMS (commencing on a separate sheet).
- (h) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

Applicant is requested to place the sections headings above prior to each section of their instant specification.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 6, 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Pohto et al (4244802).

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Pohto et al disclose a membrane cell having identical anode and cathode pans that both have tab portions that can be connected directly to an anode connector and cathode connector respectfully. See col. 4, lines 13-21 and 56-61. The anode and cathode pans have ribs and peaks wherein the peaks are welded to the surface of the respective anodes and cathodes, so that when the anode and cathode pan are bolted together, the anodes and cathodes sandwich the membrane. See col. 4, lines 36-45 and 62-68 and col. 5, lines 1-3. An ion exchange membrane is sandwiched between the anode and cathode pans when the pans are bolted together. See col. 5, lines 23-27.

The prior art of Pohto et al anticipates the applicants instant invention as shown by way of the disclosure above with respect to the instant claims as presented. The examiner believes that since the ion exchange membrane is porous and allows passage of ions through the membrane, that the membrane is porous and therefore has passage openings as recited in instant claim 6. The recitation of claim 13 appears to be met by virtue of the figure 1 showing that the anode and cathode are flat. Even though the ends are curved up, the electrodes are virtually flat and since applicants instant claim does not state that the electrodes are completely flat and since the term "characterized" is used, it appears that the electrodes can be substantially flat as in the Pohto et al patent and still meet the claim. Therefore, the prior art of Pohto et al anticipates the instant claims as presented.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 6, 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Andrews et al (2005/0058886).

Andrews disclose an electrochemical apparatus having a porous cathode substrate, a PEM, a porous anode substrate, wherein the porous cathode substrate and the porous anode substrate have a catalyst disposed thereon. The entire assembly is connected together utilizing a pressure exerting device such as that of a bolt and nut as shown in figures 2 and 3. The porous substrates can be made of metal screens, metal meshes, fabrics and the like. See paragraphs 0050-0052, 0078-0080.

Andrews anticipates the applicants instant invention as shown by way of the disclosure above with respect to the instant claims as presented. The recitation in dependent claim 6 with respect to the passage openings appears to be met by virtue of a PEM being used which allows ions to pass there through. The recitation in claim 10 with respect to the PEM being applied is given little or no patentable weight in the apparatus claim since the PEM is shown to be between the anode and the cathode and how it is applied is of little or no consequence in an apparatus claim unless it can be shown that the process materially changes the final product of the apparatus. Since applicants have not shown that it does change the final end product, the rejection will stand until such time as the data showing this has been received for the examiner to consider. With respect to claims 11 and 12, two such cells are shown in Figure 4. With respect to claim 13, The figures show that the electrodes are indeed flat. Therefore, the

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prior art of Andrews et al anticipates the applicants instant invention as presented in the instant claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-7, 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cisar et al (5916505) in combination with Murphy et al (6387241) and Hirai et al (5795450).

Cisar et al disclose an electrochemical cell having a PEM with internal passages parallel to the membrane and includes electrode assemblies using the membrane. See abstract. The electrochemical cell is shown to be held together by two metal end plates that are secured together by a plurality of cell tie rods having male threads and a plurality of nuts. To keep the endplates electrically isolated from each other, a plurality of electrically insulating sheaths and washers are used in conjunction with each rod and nut. Having electrically isolated the end plates, a positive terminal or busbar and a negative terminal or busbar can be connected to a DC power source. See col. 17, lines 4-35.

The prior art of Cisar et al does not disclose that the pressure exerting device is supported on the electrodes or that the support is coated with a doped diamond layer.

Murphy et al discloses an electrochemical cell of the same structure as Cisar et al above except that Murphy discloses that a boron doped diamond material may be used as the catalyst coating for the anode substrate. See claims 1, 2 and 10.

Hirai et al discloses a filter press type electrolyzer wherein a membrane is between two electrodes and is clamped together between two end plates using insulating spacers and having a plurality of through holes extending between the two end plates at both ends of the apparatus, wherein bolts are inserted through the holes and the bolts are tightened using nuts. See col. 7, lines 32-48. The construction is such that the diameter of the end plates on each end is greater than the diameter of the electrodes, a plurality of through holes are made in the protruding sections of the end plates, and through bolts are tightened by nuts. The patent further teaches that this eliminates the need for making through holes for bolt clamping in the electrode plates, insulating spacers and other element, to enable the apparatus to be more easily fabricated.

The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the instant invention was made because even though the prior art of Cisar et al does not disclose that the tightening or pressure exerting device is supported on the electrodes, the prior art of Hirai et al sets forth that it is known to do this but that the device is not as easily fabricated. Further, the prior art of Murphy et al is disclosed for its teaching that doped diamond is known in these types of devices for its ability to be used as a catalyst material. Therefore, one of ordinary skill in the art would be motivated to use the concepts of both Murphy et al and Hirai et al in the device of Cisar

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et al to accomplish the applicants instant invention as presently claimed. Therefore, the prior arts of Cisar et al in combination with Murphy et al and Hirai et al render the instant invention as obvious for the reasons set forth above.

Allowable Subject Matter

7. Claims 8 and 9 are allowable over the prior art of record.
8. Claims 8 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach and/or suggest the polymeric solid electrolyte being arranged in strips at a distance from another, in the interspace between the electrodes or being arrange in area pieces at a distance from one another on all sides, in the interspace between the electrodes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce F. Bell whose telephone number is 571-272-1296. The examiner can normally be reached on Monday-Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BFB
June 8, 2009

/Bruce F. Bell/
Primary Examiner, Art Unit 1795